AMENDMENT UNDER 37 C.F.R. § 1.116

Application No.: 10/516,463

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

## **LISTING OF CLAIMS:**

1. (currently amended): A rubber composition which comprises, per 100 parts by mass of a polymer, 10 to 200 parts by mass of silica and 1 to 30 parts by mass of a silane compound having sulfur atom represented by average structural formula (I):

$$({\rm R^1O})_{3-p} ({\rm R^2})_p {\rm Si-R^3-S_m-R^4-S_m-R_3-Si(R^2)_p (OR^1)_{3-p}} \quad \cdots (I)$$

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wherein R<sup>1</sup> and R<sup>2</sup> each represent a hydrocarbon group having 1 to 4 carbon atoms, R<sup>3</sup> represents a divalent hydrocarbon group having 1 to 15 carbon atoms, **p** represents an integer of 0 to 2, **m** represents a number of 1 or greater and smaller than 2, which may be an average of numbers, and R<sup>4</sup> represents a divalent functional group represented by one of following general formulae (III) to (IV):

$$R^6-S_x-R^7$$
 ... (III)

$$R^8 - S_v - R^9 - S_z - R^{10}$$
 ... (IV)

wherein  $R^6$  to  $R^7$  represents a linear or branched divalent hydrocarbon group having 1 to 20 carbon atoms,  $R^8$  to  $R^{10}$  represents a linear or branched divalent hydrocarbon group having 1 to 20 carbon atoms, a divalent aromatic group or a divalent organic group having a hetero atom which is not sulfur atom or oxygen atom,  $R^6$  to  $R^{10}$  may represent a same group or different groups, and  $\mathbf{x}$ ,  $\mathbf{y}$  and  $\mathbf{z}$  each represent a number of 2 or greater and smaller than 4, which may be an average of numbers.

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2. (original): A rubber composition according to Claim 1, wherein **m** represents 1 in

average structural formula (I) representing the silane compound having sulfur atom.

3. (original): A rubber composition according to Claim 1, wherein x, y and z each

represent a number of 2 or greater and 3 or smaller, which may be an average of numbers, in

general formulae (III) and (IV) representing the divalent functional group.

4. (original): A rubber composition according to Claim 1, wherein R<sup>4</sup> represents a

divalent functional group represented by general formula (IV) in average structural formula (I)

representing the silane compound having sulfur atom.

5. (original): A rubber composition according to Claim 1, wherein, in average

structural formula (I) representing the silane compound having sulfur atom, R<sup>4</sup> represents a

divalent functional group represented by general formula (IV) in which R8, R9 and R10 each

represent hexylene group.

6. (original): A rubber composition according to Claim 1, wherein a purity of the

silane compound having sulfur atom is 60% or greater at a time when the silane compound

having sulfur atom is mixed to form the rubber composition.

7. (previously presented): A rubber composition according to Claim 1, wherein, at

a time when the silane compound having sulfur atom is mixed to form the rubber composition, a

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content of silane compounds having sulfur atom and three or more silicon atoms in one molecule

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is 30% by mass or smaller of the rubber composition.

8. (previously presented): A rubber composition according to Claim 1, wherein a

BET surface area of the silica is 40 to 350 m<sup>2</sup>/g.

9. (previously presented): A rubber composition according to Claim 1, wherein the

polymer is a diene-based rubber.

10. (previously presented): A tire which comprises a member comprising a rubber

composition described in Claim 1.

11. (original): A tire according to Claim 10, wherein the member is a tire tread.

12. (previously presented): A rubber composition according to Claim 2, wherein, at

a time when the silane compound having sulfur atom is mixed to form the rubber composition, a

content of silane compounds having sulfur atom and three or more silicon atoms in one molecule

is 30% by mass or smaller of the rubber composition.

13. (currently amended): A rubber composition which comprises, per 100 parts by mass

of a polymer, 10 to 200 parts by mass of silica and 1 to 30 parts by mass of a silane compound

having sulfur atom represented by average structural formula (I):

 $(R^1 {\rm O})_{3-p} (R^2)_p {\rm Si} - R^3 - {\rm S}_m - R^4 - {\rm S}_m - R_3 - {\rm Si} (R^2)_p ({\rm OR}^1)_{3-p} \quad \cdots (I)$ 

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wherein R<sup>1</sup> and R<sup>2</sup> each represent a hydrocarbon group having 1 to 4 carbon atoms, R<sup>3</sup> represents a divalent hydrocarbon group having 1 to 15 carbon atoms, **p** represents an integer of 0 to 2, **m** represents a number of 1 or greater and smaller than 2, which may be an average of numbers, and R<sup>4</sup> represents a divalent functional group represented by the following general formula (II):

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$$S-R^5-S$$
 ... (II)

wherein  $R^5$  represents a decylene group, phenylene group or methylphenylethylene group,  $R^5$  may represent a same group or different groups, and  $\mathbf{x}$ ,  $\mathbf{y}$  and  $\mathbf{z}$  each represent a number of 1 or greater and smaller than 4, which may be an average of numbers.

- 14. (previously presented): A rubber composition according to Claim 13, wherein **m** represents 1 in average structural formula (I) representing the silane compound having sulfur atom.
- 15. (previously presented): A rubber composition according to Claim 13, wherein a purity of the silane compound having sulfur atom is 60% or greater at a time when the silane compound having sulfur atom is mixed to form the rubber composition.
- 16. (previously presented): A rubber composition according to Claim 13, wherein, at a time when the silane compound having sulfur atom is mixed to form the rubber composition, a content of silane compounds having sulfur atom and three or more silicon atoms in one molecule is 30% by mass or smaller of the rubber composition.

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17. (previously presented): A rubber composition according to Claim 13, wherein a

BET surface area of the silica is  $40 \text{ to } 350 \text{ m}^2/\text{g}$ .

18. (previously presented): A rubber composition according to Claim 13, wherein the

polymer is a diene-based rubber.

19. (previously presented): A tire which comprises a member comprising a rubber

composition described in Claim 13.

20. (previously presented): A tire according to Claim 19, wherein the member is a tire

tread.

21. (previously presented): A rubber composition according to Claim 14, wherein, at a

time when the silane compound having sulfur atom is mixed to form the rubber composition, a

content of silane compounds having sulfur atom and three or more silicon atoms in one molecule

is 30% by mass or smaller of the rubber composition.

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